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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,379

12/13/2005

Jurgen Gotze

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EXAMINER

PHAM, TUAN

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

10/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,379

Applicant(s)

GOTZE ET AL.

Examiner

TUAN A. PHAM

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☒ Claim(s) 4-5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

This is a response to the Applicant's filing on 12/13/2005. In virtue of this filing, claims 1-7 are currently presented in the instant application.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawing submitted on 12/13/2005 has been considered by Examiner and made of record in the application file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 12/13/2005 has been considered by Examiner and made of record in the application file.

Inventorship

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen et al. (U.S. Patent No.: 6,345,076, hereinafter, "Petersen") in view of Webster et al. (U.S. Patent No.: 6,661,875, hereinafter, "Webster").**

Regarding claims 1 and 6, Petersen teaches a method and receiving station for estimating data units transmitted via a radio channel in a radio block (see figures 1&2), by which the transmitted data units (read on $a[k]$) cause a signal sequence (read on $r[k]$) to be received in a receiving station (see col.5, ln.22-40), the signal sequence are assigned in the time sequence of their receipt to at least a first signal block and a second signal block and are processed block by block (see col.5, ln.22-40, col.8, ln.25-48), whereby the signal blocks overlap in such a way that the received signal sequence belongs to both signal block (see col.5, ln.22-40, col.8, ln.25-48), and by reference to the components of both signal blocks, estimated values are determined for the data units which were transmitted (see $\hat{a}[k]$, col.5, ln.22-40, col.8, ln.25-48).

It should be noticed that Petersen fails to teach the components of the received signal sequence. However, Webster teaches such features (see col.3, ln.15-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Webster into view of

Art Unit: 2618

Petersen in order to provide a good quality estimate channel as suggested by Webster at col.2, ln.38-41.

Regarding claim 2, Petersen further teaches the overlapping of the signal blocks is effected in such a way that there is at least one of the data units which was transmitted for which estimated values are determined by reference to each of the two signal blocks (see col.3, ln.65-67, col.4, ln.1-5, $a[k]$, $\hat{a}[k]$, $r[k]$).

Regarding claim 3, Petersen further teaches after both the estimated values have been determined, the estimated value determined by reference to one of the two signal blocks ($d1$, $d2$, $d3$) is used exclusively for the at least one data unit which was transmitted (see col.3, ln.65-67, col.4, ln.1-5, $a[k]$, $\hat{a}[k]$, $r[k]$).

Allowable Subject Matter

7. Claims 3/4 and 3/5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3/4, the applied references fails to disclose or render obvious a cyclic transfer matrix is assigned to each of the signal blocks, and the estimated values are calculated by multiplying the signal blocks by the relevant inverse transfer matrix, as specified in claim.

Regarding claim 3/5, the applied references fails to disclose or render obvious a transfer matrix with a Töplitz structure and band structure is assigned to each of the

Art Unit: 2618

signal blocks, and the estimated values are calculated by multiplying the signal blocks by the relevant pseudo inverse transfer matrix, as specified in claim.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. They are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s).

Onggosanusi et al. (U.S. Pub. No. 2004/0076224) disclosed multipath interference resistant receiver.

Affes et al. (U.S. Pub. No. 2002/0051433) disclosed interference suppression in CDMA system.

Webster et al. (U.S. Patent. No. 6,661,857) discloses rapid estimation of wireless channel impulse response.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone

Art Unit: 2618

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Technology 2600
Art Unit 2618
October 15, 2007
Examiner



Tuan Pham